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Applicant	:	J. Carl Cooper
Appl. No.	:	08/824,496
Filed	:	03/14/1997
Title		Improved IFB System Apparatus and Method
Grp./A.U.	:	2644
Examiner	:	Minsun Oh Harvey
Docket No.	:	JCC-396A

June 11, 2002

Honorable Commissioner for Patents
Washington, D.C. 20231

VIA FACSIMILE (703) 872-9314

Sir:

REMARKS/ARGUMENTS

The examiner states that an extensive review and careful analysis has been performed. Applicant wishes to express gratitude for this effort which has been undertaken by the examiner to ensure a high quality patent will issue.

On November 27, 2001 applicant filed a Notice Of Appeal, as well as an Appeal Brief in the above identified application. On March 4, 2002 the examiner issued an office action, repeating the substance of various rejections of the previous office action. In an office action dated 6/05/02 the examiner acknowledged the Appeal Brief filed 11/27/01 and stated "Prosecution was reopened in this case with the office action of 03/04/02". Applicant respectfully disagrees. The substance of the office action of 3/4/02 merely restated many of the rejections which had already been appealed. Further, applicant finds no provision in the MPEP for merely reopening prosecution and maintaining the same rejections after a Notice of Appeal is filed. There was no examiner's answer provided in the 3/4/02 office action clearly stating that all of the appealed rejections had been withdrawn, nor was there any indication that the mandatory appeal conference provided under MPEP 1208 had been held.

In the June 5, 2002 office action the examiner further stated, "[a]fter extensive review and careful analysis, a number of references that are applicable have been found, and new grounds of rejection follow". Apparently the examiner concluded that the appeal should not go forward as noted in MPEP 1208 (page 1200-16) and has further concluded that the instant claims are patentable over Kirby and has apparently withdrawn all of the previous rejections. Unfortunately the examiner has not provided the answer to the appeal brief stating that the previous rejections are withdrawn. MPEP 1208 (page 1600-16) under ANSWER provides:

> The answer should contain a response to the allegations or arguments in the brief and should call attention to any errors in appellant's copy of the claims. If any rejection is withdrawn, the withdrawal should be clearly stated in the examiner's answer under "Issues[.]"

(Underlining added). Applicant responds to the instant office action in the belief that applicant's appeal was successful in that arguments as set forth in the appeal brief (and preceding responses) are found persuasive and the rejections given in the previous office action have all been overcome.

Applicant is of the further belief that the appeal was still proper and in place and should have been responded to as of the 3/04/02 office action. Applicant believes the Office delayed issuing a proper response to applicant's Notice of Appeal and Appeal Brief by failing to issue an Examiner's Answer until the instant office action, which applicant believes is in effect an Examiner's Answer as set forth above. If applicant in incorrect that by the present office action all of the previous rejections are overcome, please so advise. Otherwise, because applicant's appeal was successful, and because the Office delayed in responding to applicants Notice of Appeal and Appeal Brief, applicant respectfully requests

these time periods be appropriately noted for extension of the term of any patent which issues on this application as provided on 35 U.S.C. § 154.

Newly Cited Rejections and Art

The examiner has rejected claims 1 and 4-19 under 35 U.S.C. § 112 stating "Claims 1 and 19 require that both delay and gain be automatically adjusted, whereas the parent claim requires that either delay or gain is human operator adjustable". Applicant notes that the independent claim 1 actually recites "with the amount of said delay or gain responsive to human operator adjustment". Claim 1 does not recite either delay or gain adjustment as the examiner states in the rejection. Claim 1 thus could cover a system where the delay is operator adjusted, or the gain is operator adjusted or where both the delay and gain are operator adjusted. The dependent claims are not inconsistent with the language of the independent claim. Reconsideration of this rejection is respectfully requested.

The examiner rejects claims 2-7, 18-27, 29-31, 37 and 38 under 35 U.S.C. 102(e) in view of Umemoto et al. The examiner notes that the talent signal is RS and the Feedback signal is EC. Applicant respectfully requests reconsideration of this rejection in that Umemoto is a distinctly different device than that claimed and utilizes distinctly different signals for distinctly different purposes.

Umemoto's feedback signal is an acoustic feedback signal, that travels through the air from the mobile telephone speaker 13 to the microphone 14. Such feedback is a common cause of unpleasant echo, or even howling, squeals and screeching in many types of audio systems. The feedback signal of the claims is not the same feedback signal which is addressed by the Umemoto invention.

Applicant notes that the howling preventing system of Tanno is also aimed at removing the Umemoto type of feedback.

Umemoto is an echo canceller circuit which is useful the art of mobile telephone systems (col. 1, l. 11-24). Applicant's invention is used in an IFB environment in a broadcasting type system. Note in Figure 2 that Umemoto's invention operates to process (with ADF 31) a portion of the volume adjusted (36) and limited (37) received signal (RS) and subtract that processed signal (from 31) from the outgoing microphone signal ES in 32. Simply stated the received signal RS is being cancelled from the transmitted microphone (talent) signal TS to cancel the acoustic feedback signal EC out of ES.

By contrast, in applicant's invention of the rejected claims, a portion of the talent signal is combined with the feedback (received) signal to cancel the delayed talent portion which is present in the feedback signal.

Applicant points out that applicant's feedback signal is particularly defined in applicant's disclosure in relation to the term of art IFB meaning Interrupted Feed Back (for example page 1, lines 3-6, page 2, lines 21 & 22). This signal is referred to in the disclosure when defining the "feedback signal" at page 3, last line through page 4, line 15. Applicant's claimed feedback signal is a combination of program material and talent signal and the invention operates to provide a mix minus signal. In the usual system of the preferred embodiment, the talent signal is sent from a reporter's remote location to the broadcasting station where it is delayed and combined with the program material and returned via broadcast transmitter (and further delay) to the reporter's location. The invention operates to remove the talent signal from the delayed feedback signal to provide the mix minus signal which is primarialy the delayed program material from the feedback signal. It is important to note that the preferred embodiment starts with delayed feedback (delayed program and delayed talent)

and undelayed talent signal to provide delayed program (without the delayed talent).

According to the examiner's interpretation RS is the talent signal which is most likely delayed in the transmission to the device, the feedback signal is EC (which has no program content) which the examiner recognizes is undelayed. The examiner points to 31 as providing the cancellation signal, but it is responsive to the (presumably) already delayed talent signal RS. The feedback signal consists only of the talent signal RS which has been volume adjusted (36) limited (35) and converted to sound (11 & 12).

The difference between applicant's claims and Umemoto is clear. Claim 1 for example calls for providing a cancellation signal in response to the relatively undelayed talent signal and applying the cancellation signal and the delayed feedback signal to a combining circuit to provide the mix minus signal, i.e. the delayed program material from the feedback signal without the delayed talent signal. According to the examiner's configuration of Umemoto the undelayed feedback signal is coupled to the combining circuit to completely remove the feedback signal. There is no program signal or mix minus signal.

undelayed in claim 1.

Assuming arguendo Umemoto's signal EC corresponds to the claimed feedback signal and RS corresponds to the claimed talent signal as the examiner suggests, where is the program material in EC? The feedback signal EC of Umemoto is not a delayed combination of talent signal program material as is taught in the instant specification, rather it is only the volume adjusted (36) and limited (35) audible version of RS. Further, the signal RS is not a talent signal as taught in the instant specification but is rather the received signal in a mobile telephone system.

The feedback EC it is not applied to any combining circuit with a cancellation signal responsive to the relatively undelayed talent signal resulting in the

claimed mix minus signal which in the art and as taught in the instant specification is known to be the delayed program material without the talent signal. If 32 is assumed to be the combining circuit, it receives only the feedback signal EC (which has no program material) and the RSS signal via 31. This signal from 31 is only the feedback portion of RS, that is it is intended to match EC so that complete cancellation of the signal EC takes place in 32. There is no program signal in either RS or the resulting TS. Even if there were some content in RS considered to be program content and resulting in program content in EC, all of the program content will be canceled by 32. If the signal from the microphone 14 is considered to be the program signal then it is not delayed and the talent signal RS is not relatively undelayed.

Viewed another way, Claim 1 calls for the combining circuit to provide a mix minus signal which is taught to be delayed program material without much or all of the delayed talent signal. Under any reasonable interpretation of Umemoto the resulting signals ESS and TS do not correspond to the claimed mix minus signal, i.e. delayed program material with little or no delayed talent signal, which is provided by the claimed combining circuit (32).

Claims 2-7, 10, 11 and 16-18 were rejected under U.S.C. 102(b) as anticipated by Agrawal "using a similar analysis to that used" for Umemoto. Agrawal is an echo canceller used in a telephone system. Looking to Figure 1, it is seen that the system shown is symmetric about the digital switch matrix 10. Looking to the left side, the only signal which could correspond to the talent is the transmit signal 12 from the microphone of A. The only elements which could correspond to the claimed combining circuit are 30 and 50. The element 50 does not respond to the talent signal as claimed. Element 30 is responsive to the talent signal and a filtered version of the received signal Xa to remove the received signal Xa from the talent signal. Thus the talent signal is not removed or

canceled in 30 as claimed, it is passed. In claim language terms, 30 does not provide a mix minus signal.

Claims 8-17, 28 and 32-36 were rejected under U.S.C. 103(a) as being unpatentable over Umemoto considered with Kuo. Because of the differences between the claims and Umemoto as discussed above, the combination also fails to meet the claim language. Further, although Kuo does describe a "Correlation LMS Algorithm" there is no suggestion found in Kuo or Umemoto to use Kuo to provide the claimed correlation features. Although applicant agrees that Kuo does point to and teach a particular textbook example of correlation, applicant disagrees with the characterization of Kuo as providing either suggestions or enabling teachings of the various claim elements in combination as suggested in the office action. For example, the examiner states "correlation is just a type of comparison, and comparison is a type of correlation". Applicant disagrees in that this broad sweeping statement is neither taught or suggested by Kuo or Umemoto, and further that it is a statement which is not in context with the claim elements. There are many types of comparisons and correlations and without further context the statement fails to point to any teaching in the art which renders any of the particular combinations of claim elements anticipated or obvious.

Claims 1-17, 40, 41 and 43-47 were rejected under U.S.C. 103(a) as being unpatentable over Tanno considered with Davidson and Kuo. As pointed out above, Tanno is similar to Umemoto in that it reduces squealing from acoustic feedback.

The examiner points to T2 as being the claimed combining element, and M1 the talent signal. The cancellation signal is provided by D1, thus the other signal which is coupled to T2 must be the feedback signal. Claim 1 however calls for a delayed feedback signal and a relatively undelayed talent signal. When Tanno is

configured as suggested by the examiner, the feedback signal is undelayed (the examiner notes there is no variable delay) and the talent signal is delayed (by A1, S1 and the acoustic path from S1 to M2). There is no suggestion in any of Tanno, Davidson or Kuo to combine the references as the examiner suggests to achieve the invention as claimed, however even if they are combined as suggested the problem of the delayed and undelayed signals pointed to above is not cured.

It might be noted that the examiner relies on Davidson for showing "the use of manually adjustable delays to delay a signal sufficiently to allow it to cancel an acoustically delayed version of itself" and goes to considerable length to justify the combination of Davidson with Tanno (and Kuo) to provide various claim elements such as variable gain, etc. Applicant believes that this combination results from impermissible hindsight reconstruction. By contrast to the examiner's combination, in the invention of the rejected claims there is no acoustic delay involved. The delays which are of concern in the instant invention result from various electronic transmission and electronic signal processing where the nature of the delays is well understood. In particular the character of the preferred embodiment video signal processing delays which give rise to the large audio delays (to prevent lip sync errors), as well as the various transmission delays, are all well known. These delays generally have well behaved group delay, frequency response and distortion characteristics, totally unlike acoustic delays which are plagued with the vagaries of physical and spatial characteristics of the acoustic environment. One of ordinary skill would not be motivated look to acoustic feedback and cancellation technology such as Umemoto, Davidson and Tanno to achieve the various elements of the claimed invention.

As just one example of the lack of motivation for one of ordinary skill to look to acoustic technology, at the top of page 11 of the office action the examiner

states "[u]nless it can be guaranteed, and known ahead of time that A1 and GS1-M2 will always be constant (this is very unlikely to be the case), then clearly a variable gain adjustment must be provided for GinjT2". In fact in the broadcasting systems which the instant invention is intended to be used with, gains, once established, are usually very stable or at the most only very slowly changing. By contrast in acoustic systems the gains and delays are constantly required to change due to such factors as air movement, background noise, and even changes in the physical location such as people moving about. This is a level of complexity which teaches away from the solutions of the present invention.

Claims 4-17/1 were rejected using reasoning similar to that given in the rejection supra using Umemoto and Kuo. Applicant responds to this rejection incorporating the arguments given above.

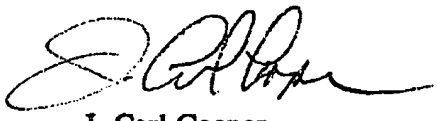
Claims 18, 42 and 48-53 were rejected under U.S.C. 103(a) as being unpatentable over Tanno, Davidson and Kuo combined as above, further considered with either of Agrawal or Umemoto, or alternatively, either of Agrawal or Umemoto considered with Davidson. Applicant responds to this rejection incorporating the arguments given above.

In that the claims clearly distinguish over the art of record, applicant requests favorable action and timely issuance of notice of allowance.

Respectfully Submitted,

J. Carl Cooper
Reg. 34,568
(408) 871-1975

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. (703) 872-9314 on June 11, 2002.



J. Carl Cooper